

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
James R. Lupski, et al.

Application No.: 10/021,955

Group Art Unit: 1637

Filed: December 13, 2001

Examiner: S. Chunduru

For: DEFECTS IN PERIAXIN ASSOCIATED WITH
MYELINOPATHIES

DECLARATION UNDER 37 CFR §1.132

Dear Sir:

I, David L. Nelson, Ph.D., do hereby depose and say as follows:

1. I am a United States citizen residing at 4808 Maple St., Bellaire, TX, 77401, USA.
2. I am an employee of the assignee of the above-referenced patent application, and I am familiar with the contents of said application.
3. I am a Professor of Molecular and Human Genetics at Baylor College of Medicine in Houston, Texas. I received B.A. degrees in Biology and Chemistry from the University of Virginia in 1978 and a Ph.D. degree from Massachusetts Institute of Technology in 1984. Additional information about my educational and professional background is contained in my CV that is attached as Appendix 1. As a result of my education and experience, I am an expert in the fields of molecular genetics and human genetic disease diagnostics. Although I am an expert in this field, the opinions expressed below are those of one with ordinary skill in this field, who I regard as a M.D. and/or Ph.D. graduate from an accredited institution who has experience with human genetics and genetic diagnostics. I can provide such opinions drawing on my experience teaching and my working with graduate students, and through my interaction with colleagues locally and internationally in the areas of molecular and human genetics.

4. The pending claims are directed to methods of diagnosing myelinopathy by detecting alterations in a periaxin polynucleotide of an individual and are also directed to methods of detecting a polymorphism or mutation in a periaxin polynucleotide of an individual.

5. I understand that the Patent Examiner in charge of examining the patent application identified above has rejected the pending claims for allegedly failing to comply with the written description requirement and the enablement requirement. I understand that claims may be rejected if they have not been described in such a way that one of ordinary skill in the art would recognize that Applicants had possession of the invention at the time of filing. I also understand that the claims may be rejected if Applicants have not shown how to make and use the invention commensurate with the scope of the claims. It is my opinion that the rejections are incorrect for the reasons discussed below.

6. The Examiner states that there is no showing in the specification that any alteration in *PRX* is diagnostic for myelinopathies in general. In particular, the Examiner states that the specification does not teach that there is a predictable correlation between any *PRX* mutations and any myelinopathy. Based on the teachings in the application, one of skill in the art would be able to apply the teachings therein to identify disease-associated periaxin mutations other than those specifically identified therein.

In fact, the application demonstrates sufficient correlation between several exemplary *PRX* mutations and a spectrum of highly related demyelinating neuropathies, and therefore those of skill in the art would certainly consider there to be a showing that alterations in *PRX* are diagnostic for myelinopathies. For example, the specification describes in at least paragraphs [0244] and [0260] that several mutations, such as 2787ΔC and 2857C>T, for example, are the cause of autosomal recessive DSN. Furthermore, the inventors describe in at least paragraphs [0264]-[0273] that there are mutations that cause a broad spectrum of demyelinating neuropathies, including CMT myelinopathies and DSN.

It is important to note that there is significant phenotypic overlap among myelinopathies, which is even discussed in the specification (see at least paragraphs [0074] through [0083]), including at least phenotypic defects in myelin, but also the phenotypes of onion bulb defects (found in CMT1, DSS, and CHN); slowed motor nerve conduction velocities (NCV) (found in CMT1, HNPP, DSS, and CHN); muscle weakness (CMT1 and

CHN); gait disturbance or ataxia (CMT1 and RLS); and areflexia (CHN and RLS), for example. Therefore, one of skill in the art recognizes that myelinopathies such as Dejerine-Sottas neuropathy (DSN) and Charcot-Marie-Tooth disease type 1 (CMT1) are only part of a spectrum of neuropathy phenotypes having different degrees of severity. The specification even notes that there is a precedent for there being more than one defective gene even within the family itself, given that for CMT1, related mutations in many genes in addition to *PMP22*, including genes such as *MPZ*, *Cx32*, *EGR α* , *MTMR2*, and *NDRG1* have been found to cause CMT1 (see paragraphs [0079] and [0080]). Furthermore, DSS and CHN can be caused by mutations in multiple genes (*MPZ* and *EGR2* for both), and the specification even states (paragraph [0080]): "...these myelinopathies appear to represent a *spectrum of related disorders resulting from myelin dysfunction*". Therefore, it is clearly within the scope of the present invention to provide for mutations in a single locus, *PRX*, as diagnostic of a spectrum of clinically-defined myelinopathies.

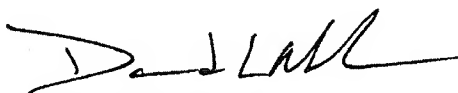
7. The Examiner furthermore states that there is no showing in the specification that any alteration in a single *PRX* allele would indicate that someone is susceptible to or a carrier of myelinopathy. One of skill in the art recognizes that according to the specification the *PRX*-associated myelinopathies are autosomal recessive in nature. In autosomal recessive diseases, such as those periaxin-associated myelinopathies of the present invention (see, at least, paragraphs [0062], [0242], [0244], [0246], [0247], [0260], [0261], [0268], and [0273]), by definition there must be mutations present on both alleles before the disease occurs, whether as a homozygote or compound heterozygote. Therefore, the skilled artisan would know whether a person would be predicted to be a carrier or to suffer from myelinopathy based on the findings of genetic diagnostic testing of the *PRX* gene. Such studies are absolutely routine in the field.

In particular, one can distinguish between a polymorphism and a disease-associated mutation in the *PRX* gene from family studies, as it is highly unlikely to find within an affected family that two non-diseased parents of a diseased individual would be carriers of rare variants predicted to alter gene function and not found commonly in the population. For example, if the sequence alteration is a polymorphism, it is expected to be identified in controls at an appreciable frequency and would not be found to segregate with the disease phenotype. Again, one of skill in the art employs such methods in standard practices in human molecular genetics.

8. Furthermore, since the time of the filing of the application, the inventors and others confirmed the role of *PRX* in myelinopathies other than DSN (at least Guilbot *et al.*, 2001; Delague *et al.*, 2000; Boerkoel *et al.*, 2001; Kijima *et al.*, 2004) employing methods analogous to those described in the application. Therefore, one of skill in the art was provided sufficient guidance to have been described the subject matter of the invention and was also shown how to make and use the methods of the invention.

9. I hereby declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: February 1, 2007



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EDUCATION: Ph.D. (Biology), Massachusetts Institute of Technology, June 1984
B.A. (Biology and Chemistry), University of Virginia, June 1978

RESEARCH EXPERIENCE

2003-present Cullen Foundation Professor, Department of Molecular and Human Genetics, BCM

1999-present Professor, Department of Molecular and Human Genetics, BCM

2003-present Director, BCM-Emory Fragile X Center

1995-present Associate Director, Mental Retardation Research Center, BCM

1998-present Advisory Faculty, Human Genome Sequencing Center, BCM

1994-1999 Associate Professor, Department of Molecular and Human Genetics, BCM

1996-1998 Associate Director, Human Genome Sequencing Center, BCM

1995-1996 Director, Human Genome Center, BCM

1992-1994 Associate Director, Human Genome Center, BCM

1990-1994 Assistant Professor, Department of Molecular and Human Genetics, BCM

1989-1990 Instructor, Institute for Molecular Genetics, Baylor College of Medicine.

1986-1989 Senior Research Associate, Howard Hughes Medical Institute, Baylor College of Medicine, with Dr. C. Thomas Caskey.

1985- 1986 Staff Fellow, NINCDS, Laboratory of Molecular Genetics, with Dr. Robert Lazzarini.

1979-1984 Thesis project, MIT, with Dr. David Housman. "Chromosome Transfer of Introduced Selectable Markers: Use in Gene Mapping and Isolation."

RELEVANT EXPERIENCE

1993-present Participant, Graduate program in Cell and Molecular Biology, BCM

1987-present Lecturer, Baylor College of Medicine, Department of Molecular and Human Genetics, courses "Introduction to Medical Genetics" (course coordinator 1997-2000), "Genetic Engineering" and "Human Genetics"

Service:

American Society of Human Genetics (Secretary, 2003-present)
 BCM Committee on Scientific Integrity (2002-present)
 BCM Patent and Copyright Committee (2002-present)
 FRAXA Research Foundation Advisory Board (1999-present)
 National Fragile X Foundation Advisory Board (1999-present)
 Huntington Disease Society of American Grant Review Board (1999-present)
 BCM MHG Basic Sciences Faculty Search Committee (Chair, 2004)
 Canadian Inst. of Health Research Genomics Study Section, (Chair, 2001-2005)
 US NIH/NICHD Mental Retardation Review Committee (1998-2002)
 US DOE Joint Genome Institute Advisory Board (1997-2000)
 Canadian MRC Genomics Review Committee (Chair, 1999)
 US NIH Rat Genome Project External Advisory Board (1996-1998)
 BCM MHG Departmental Advisory Committee (1999-present)
 BCM Graduate Promotions Committee (1997-present)
 BCM Graduate Admissions Committee (1998-present)
 BCM MHG Graduate Education Committee (1996- present)
 BCM MHG Graduate Oral Exam Committee (1992-present); (Chair, 1994-2000)
 BCM Research Advisory Committee (1996-1998)
 Genome Data Base Quarterly Review Committee (1995-97)
 BCM MHG Mammalian Genetics Search Committee (Chair, 1996-97)
 BCM High School for the Health Professions committee (1990- 1996)
 BCM MHG Space Committee (1992)
 Canadian Genome Analysis and Technology Peer Review (1993-1995)
 US DOE HERAC Subcommittee on Applications of Genome and Structural Biology Programs (1995)

Memberships:

AAAS, ASM, ASHG, HUGO, Eur Soc Hum Genet,
 Sigma Xi, La Jolla group on the origins of humans

Editorial Boards:

Mammalian Genome
 Genome Research
 Clinical Genetics
 Human Genome Organisation (HUGO) (*Senior editor, Chromosome X*)
 Genomics (*Associate Editor*) (1993-2001)
 American Journal of Human Genetics (*Associate Editor* 1996-2001)
 Human Molecular Genetics (1992-1998)
 Cytogenetics and Cell Genetics (1995-1997)
 PCR Methods and Applications (1991-1995)
 Journal of Molecular Neuroscience (1985-1990)
 Genetic Analysis: Techniques and Applications (*executive editor* 1990-1994)

Grant Reviews:

Grants to NIH, NSF and DOE. Member, NICHD Mental Retardation Review Committee. Served (*ad hoc*) for NIH (DRG, NCI, NICHD, NINDS and NHGRI) and DOE (Genome and Radiation Biology) study sections and site visits. Member, Canadian Genome Peer Review Committee 1993-1995, Member, Canadian Inst Health Research Genome Review Committee (Chair 2001-2005) *ad hoc* reviews for Canadian MRC, Italian Telethon, French AFM, Wellcome Trust, Canadian Genetic Disease Network, Hong Kong.

Meetings Organized:

Large Insert Cloning Workshop (NIH/DOE Sponsored) Houston, December 1989
 1st International X Chromosome Workshop, Houston, December 1989

4th International Fragile X Conference, Albuquerque, June 1994
6th International X Chromosome Workshop, Banff, June 1995
Methods for Gene Finding, Banbury, Cold Spring Harbor, December 1995
Triplet repeats and polyglutamine tracts, Banbury, CSH, May 1996
7th International X Chromosome Workshop, Hinxton, October 1996
Unstable Triplets, Microsatellites, and Human Disease, Santa Fe, April 1997
DNA Conformation, Triplet Expansion and Human Disease, Chapel Hill, April 1999
Fragile X Syndrome, Banbury Center, Cold Spring Harbor, April 2000
Fragile X Syndrome, Banbury Center, Cold Spring Harbor, March 2001
Unstable Triplet Repeats, Amsterdam, April 2001
X-Linked Mental Retardation, Rome, August 2001
Fragile X Syndrome, Banbury Center, Cold Spring Harbor, April 2002
X-Linked Mental Retardation, Cypress, August 2003
Unstable Triplet Repeats, Banff, March 2004
X-Linked Mental Retardation, Williamsburg, August 2005

Invited Lectures (1992-present):

Massachusetts Institute of Technology, Cambridge, January 1992.
The Whitehead Institute, Genome Center, Cambridge, January 1992.
Integrated Genetics, Framingham, January 1992.
Iowa State University, Genetics, Ames, February 1992.
The Salk Institute, La Jolla, February 1992.
U Texas HSC, Genetics, Houston, February 1992.
University of Michigan, Human Genetics, Ann Arbor, March 1992.
University of California San Francisco, Genetics, San Francisco, March 1992.
Neurologically Impaired Individual, Richmond, March 1992.
Ethical and Legal Aspects of Large Pedigree Research, Charleston, March 1992.
University of California Berkeley, Markey Symposium, Berkeley, March 1992.
Ohio State University, Biochemistry, Columbus, April 1992.
Texas Genetics Network, College Station, April 1992.
European School of Medical Genetics, Sestri Levante, April 1992.
Advanced Course in Molecular Genetics, Leiden, May 1992.
Massachusetts General Hospital, Neuroscience, May 1992.
Canadian Fragile X Conference, Kingston, August 1992.
Genomics Technology and Mutation Analysis, Santa Fe, September 1992.
Texgene Educational Conference, S. Padre Island, September 1992.
Molecular Bases of Human Diseases, Milan, September 1992.
Banbury Conference, DNA Repeats, Cold Spring Harbor, October 1992.
U Texas HSC, Pediatrics Grand Rounds, Houston, October 1992.
American Association of Clinical Chemistry, San Diego, November 1992.
New York State Institute for Basic Science, Staten Island, December 1992.
The Rockefeller Institute, New York, December 1992.
Harvard Medical School, Genetics, Boston, December 1992.
DOE Contractors Workshop, Santa Fe, February 1993.
Molecular Biology in Neuroscience, Mexico City, February 1993.
American Genetic Association Symposium, E. Lansing, March 1993.
Ontario Cancer Institute, Toronto, April, 1993.
Keystone Symposium Gene Therapy, Keystone, April 1993.
MacMaster University School of Medicine, Hamilton, April, 1993.
New Jersey Medical School, Newark, May 1993.
4th Intl X Chromosome Workshop, St. Louis, May 1993.
Triplet Repeats, HDF Workshop, Dallas, September 1993.
Genomic Fingerprinting, Madrid, October 1993.
HUGO/GDB Chromosome Conference, Tsukuba, November 1993.
U Minnesota Medical School, Minneapolis, February 1994.
Texas A&M IBT, Houston, March 1994.
Florida Institute of Technology, Melbourne, March 1994.
5th Intl X Chromosome Workshop, Heidelberg, April 1994.

Erasmus University, Rotterdam, April 1994.
 4th Intl Fragile X Conference, Albuquerque, June 1994.
 Washington University, St. Louis, September 1994.
 Latin American Congress of Genetics, Puerto Vallarta, October 1994.
 DOE Contractors Workshop, Santa Fe, November 1994.
 AAAS Annual Meeting, Atlanta, February 1995.
 Case Western Reserve School of Medicine, Cleveland, February 1995.
 North Carolina Medical Genetics Society, Research Triangle, March 1995.
 University of North Carolina, Chapel Hill, March 1995.
 1st CGAT Grantees Workshop, Toronto, April 1995.
 4th Intl Conference on Mathematical Population Dynamics, Houston, May 1995.
 Clinical/Molecular Correlates in Neurogenetics, San Antonio, September 1995.
 Winnipeg Health Sciences Centre, Human Genetics, Winnipeg, October, 1995.
 University of Calgary Medical School, Calgary, November 1995.
 University of Southern California Medical School, Los Angeles, January 1996.
 Rice University Keck Center for Bioinformatics, Houston, January 1996.
 HGM 96, Heidelberg, March 1996.
 TIGEM, Milan, March 1996
 Massachusetts General Hospital, Boston, April 1996.
 Intl Soc Animal Genetics, Tours, July 1996
 IGBMC, Strasbourgh, July 1996
 5th Intl Fragile X Conference, Portland, August 1996
 Workshop on Molecular Evolution, Woods Hole, August 1996
 Eleanor Roosevelt Cancer Institute, Denver, October 1996
 7th Intl X Chromosome Workshop, Cambridge, October 1996
 University of Pittsburgh, Pittsburgh, February 1997
 Unstable Triplets, Microsatellites and Human Disease, Santa Fe, April 1997
 Genes, Gene Families, and Isozymes, San Antonio, April 1997
 University of Washington, Seattle, September 1997
 Research in Gynecologic Cancer, Seoul, September 1997
 Cologne Spring Meeting, Cologne, February 1998
 Explaining the origins of humans, La Jolla, February 1998
 University of Texas Southwestern Medical School, March 1998
 6th Intl Fragile X Conference, Asheville, July 1998
 American Society of Human Genetics, Denver, October 1998
 Explaining the Origins of Humans, La Jolla, March 1999
 DNA Conformation, triplet expansion and human disease, Chapel Hill, April 1999
 NIH Director's Wednesday afternoon lecture series, Bethesda, February 2000
 Great Apes: Phenotypes and Genotypes, Banbury, March 2000
 Fragile X Syndrome, Banbury, April 2000
 7th International Fragile X Conference, Los Angeles, July 2000
 Single Nucleotide Polymorphisms, Taos, September 2000
 Primate Evolution, ASHG, Philadelphia, October 2000
 Samsung International Symposium, Seoul, October 2000
 Jichi Medical School, Tochigi, November 2000
 National Institute of Neuroscience, Tokyo, November 2000
 Winter Brain Conference, Steamboat Springs, January 2001
 Emory University, School of Medicine, Atlanta, February 2001
 MD Anderson Cancer Center, Houston, April 2001
 Unstable Triplet Repeats, Holland, April 2001
 Explaining the Origins of Humans, La Jolla, November 2001
 University of Florida, Gainesville, December 2001
 AAAS Genome Workshop, Boston, February 2002
 Explaining the Origins of Humans, La Jolla, March 2002
 Lazzarini Symposium, Duke University Med. School, Durham, March 2002
 8th International Fragile X Conference, Chicago, July 2002
 Explaining the Origins of Humans, La Jolla, November 2002
 ALA 2003 Conference and Exhibition, Palm Springs, February 2003

Explaining the Origins of Humans, La Jolla, March 2003
Wayne State Univ. Ctr. For Mol Med. & Genetics, Detroit, March 2003
Synaptic Function in Fragile X, Banbury, April 2003
Children's National Med. Ctr., Washington, DC, June 2003
Small Talk Conferences, San Jose, July 2003
11th International Fragile X and X-Linked MR, Cyprus, August 2003
Explaining the Origins of Humans, La Jolla, November 2003
New Pharmacology/Neurobiology Approaches to the Treatment of Fragile X, Banbury, April 2004
9th International Fragile X Conference, Washington DC, June 2004
Salve Regina University, Fragile X and Autism, Newport, July 2004
Explaining the Origins of Humans, La Jolla, August 2004
Fragile X Syndrome, Banbury, February 2005
Seattle International Conf. on Primate Genomics, Seattle, March 2005
Neurobiology of Fragile X, Arden House, July 2005
12th International Fragile X and X-linked MR, Williamsburg, August 2005
Fragile X Biology mini symposium SFN, Washington, November 2005
MD Anderson Cancer Center, Houston, February 2006
Fragile X Syndrome, Banbury, April 2006
10th International Fragile X Conference, Atlanta, July 2006
Intl Soc Developmental Neuroscience, Banff, August 2006
Unstable Triplet Repeats, Granada, November 2006

Current Federally supported projects:

NIH/NICHD: Fragile X related genes in mental retardation
(5 R01 HD38038-04) 08/10/99 – 07/31/10; Role on Project: David L. Nelson, P.I.

NIH/NICHD: Molecular Analysis of Xq-28-Linked Incontinentia Pigmenti
(2 R01 HD035617-05A1) 08/01/97-11/30/08; Role on Project: David L. Nelson, P.I.

NIH/NICHD: Baylor College of Medicine Mental Retardation Research Center
(2 P30 HD24064-15) 08/01/88 – 06/30/06; Role on Project: HY Zoghbi, PI; DL Nelson, Co-Director

**NIH/NICHD: Baylor College of Medicine Mental Retardation Research Center/
Baylor Fragile X Research Center**
(2 P30 HD24064-15 S1) 04/01/03 - 03/31/08; Role on Project: HY Zoghbi, PI; DL Nelson, Director

NIH /NHGRI: Large Scale Sequencing at the BCM HGSC
(1 U01 HG02051) 11/01/03-10/31/06; Role on Project: RA Gibbs (PI); DL Nelson, Collaborator

Patents:

6,824,972 Diagnosis and treatment of medical conditions associated with defective NF-kappa activation
6,107,025 Diagnosis of the fragile X syndrome

PUBLICATIONS

Books and volumes edited

Brownstein, B and Nelson, DL (eds.) (1994) *YAC Libraries: A User's Guide*. WH Freeman, New York, 211 pp.

Bailey, Jr., DB and Nelson, DL (eds.) (1995) Fragile X Syndrome, in *Mental Retardation and Developmental Disabilities Research Reviews* 1 (4):237-303.

Primary Articles (113 published or in press)

116. Rhesus Macaque Sequencing Consortium. The Genome Sequence of the Rhesus Macaque. submitted.
115. Probst, FJ, Roeder, ER, Enciso VB, Cooper ML, Eng P, Li, J, Yanghong Gu, Y, Chinault, AC, Ou, Z, Shaw, CA, Sutton, VR, Cheung, SW, Nelson, DL. Chromosome Microarray Analysis (CMA) Detects a Large X Chromosome Deletion Including *FMR1*, *FMR2*, and *IDS* in a Female Patient with Mental Retardation. submitted.
114. Sofola, OA, Jin, P, Duan, R, Liu, H, de Haro, M, Nelson, DL, Botas, J. RNA binding proteins hnRNP2-B1 and CUGBP1 suppress Fragile X CGG premutation repeat-induced neurodegeneration in a *Drosophila* model of FXTAS. submitted.
113. Brouwer JR, Mientjes EJ, Bakker CE, Nieuwenhuizen IM, Severijnen LA, Van der Linde HC, Nelson DL, Oostra BA, Willemsen R. Elevated Fmr1 mRNA levels and reduced protein expression in a mouse model with an unmethylated Fragile X full mutation. (2007) *Exp Cell Res* 313:244-253
112. Musumeci, SA, Calabrese, G, Bonaccorso, CM, Dantoni, S, Bakker, CE, Elia, M, Ferri, R, Nelson, DL, Willemsen, R, Oostra, BA, Catania, MV. Audiogenic seizure susceptibility is reduced in Fragile X knockout mice after introduction of FMR1 transgenes. (2007) *Exp Neurol* 203:233-240.
111. Nishijima, I, Yamagata, T, Spencer, CM, Weeber, EJ, Alekseyenko, O, Sweatt, JD, Momoi, M, Ito, M, Armstrong, D, Nelson, DL, Paylor, R, Bradley, A. Secretin receptor deficient mice exhibit impaired synaptic plasticity and social behavior. (2006) *Hum Mol Genet*, 15:3241-50.
110. Spencer, CM, Serysheva, E, Yuva-Paylor, LA, Oostra, BA, Nelson, DL, Paylor, R. Exaggerated behavioral phenotypes in Fmr1/Fxr2 double knockout mice reveal a functional genetic interaction between Fragile X-related proteins. (2006) *Hum Mol Genet* 15:1984-1994.
109. Scherer, SE, Muzny, DM, ... Nelson, D, Kucherlapati, R, Weinstock, G, Gibbs, RA. The finished DNA sequence of human chromosome 12. (2006) *Nature* 440:346-351.
108. Matsuura, T, Fang, P, Pearson, CE, Jayakar, P, Ashizawa, T, Roa, BB, Nelson, DL. Interruptions in the expanded ATTCT repeat of spinocerebellar ataxia type 10: Repeat purity as a disease modifier? (2006) *Am J Hum Genet* 78:125-129.
107. Mientjes, EJ, Nieuwenhuizen, I, Kirkpatrick, L, Zu, T, Hoogeveen-Westerveld, M, Severijnen, L, Rife, M, Willemsen, R, Nelson, DL, Oostra, BA. (2006) The generation of a conditional *Fmr1* knock out mouse model to study Fmrp function *in vivo*. *Neurobiol Dis* 21:549-555.
106. Yu, F, Sabeti, PC, Hardenbol, P, Fu, Q, Fry, B, Lu, X, Ghose, S, Vega, R, Perez, A, Pasternak, S, Leal, SM, Willis, TD, Nelson, DL, Belmont, J, Gibbs, RA. (2005) Positive selection of a pre-expansion CAG repeat of the human SCA2 Gene. *Plos Genetics* 1:e41.
105. Koekkoek, SK, Yamaguchi, K, Milojkovic, BA, Dortland, BR, Ruigrok, TJ, Maex, R, De Graaf, W, Smit, AE, VanderWerf, F, Bakker, CE, Willemsen, R, Ikeda, T, Kakizawa, S, Onodera, K, Nelson, DL, Mientjes, E, Joosten, M, De Schutter, E, Oostra, BA, Ito, M, De Zeeuw, CI. (2005) Deletion of FMR1 in Purkinje cells enhances parallel fiber LTD, enlarges spines, and attenuates cerebellar eyelid conditioning in Fragile X syndrome. *Neuron* 47:339-352.

104. Ross, MT, Grafham, DV, Coffey, AJ, Scherer, S,... **Nelson, DL**,... *et.al.*, (2005) The DNA sequence of the human X chromosome. *Nature* **434**:325-337.
103. Mientjes, EJ, Willemsen, R, Kirkpatrick, LL, Nieuwenhuizen, IM, Hoogeveen-Westerveld, M, Verweij, M, Reis, S, Bardoni, B, Hoogeveen, AT, Oostra BA and **Nelson, DL** (2004) *Fxr1* knockout mice show a striated muscle phenotype: implications for *Fxr1p* function *in vivo*. *Hum Mol Genet* **13**:1291-1302.
102. Matsuura T, Fang P, Lin X, Khajavi M, Tsuji K, Rasmussen A, Grewal RP, Achari M, Alonso ME, Pulst SM, Zoghbi HY, **Nelson DL**, Roa BB, Ashizawa T (2004) Somatic and Germline Instability of the ATTCT Repeat in Spinocerebellar Ataxia Type 10. *Am J Hum Genet* **74**(6):1216-24.
101. Jin, P, Zarnescu, DC, Ceman, S, Nakamoto, M, Mowrey, J, Jongens, TA, **Nelson DL**, Moses, K, Warren, ST (2004) Biochemical and genetic interaction between the fragile X protein and the microRNA pathway. *Nat. Neurosci* **7**:113-117.
100. Gu, Y, **Nelson, DL** (2003) FMR2 function: Insight from a mouse knockout model. *Cytogenet Genome Res* **100**:129-139.
99. Bonnen, PE, Wang, PJ, Kimmel, M, Chakraborty, R, **Nelson DL** (2002) Haplotype and linkage disequilibrium architecture for human cancer-associated genes. *Genome Research* **12**:1846-1853.
98. Peier, AM, **Nelson, DL** (2002) Instability of a premutation-sized CGG repeat in FMR1 YAC transgenic mice. *Genomics* **80** (4):423-432.
97. Morales, J, Hiesinger, PR, Schroeder, AJ, Kume, K, Verstreken, P, Jackson, FR, **Nelson, DL**, Hassan, B (2002) *Drosophila* Fragile X Protein, DFXR, Regulates Neuronal Morphology and Function in the Brain. *Neuron* **34**:961-972.
96. Aradhya, S, Woffendin, H, Bonnen, P, Heiss, NS, Yamagata, T, Esposito, T, Bardaro, T, Poustka, A, D'Urso, M, Kenwick, S, **Nelson, DL** (2002) Physical and Genetic Characterization Reveals a Pseudogene, an Evolutionary Junction, and Unstable Loci in Distal Xq28. *Genomics* **79**:31-40.
95. Yamagata T, Aradhya S, Mori M, Inoue K, Momoi MY, **Nelson DL** (2002) The Human secretin gene: Fine structure in 11p15.5 and sequence variation in patients with autism. *Genomics* **80**:185-194.
94. Triikka, D, Fang, Z, Renwick, A, Jones, SH, Chakraborty, R, Kimmel, M, **Nelson, DL** (2002) Complex SNP-based haplotypes in three human helicases: Implications for cancer association studies. *Genome Research* **12**:627-639.
93. Bontekoe CJM, McIlwain KA, Nieuwenhuizen IM, Yuva-Paylor LA, Nellis A, Willemsen, Fang Z, Kirkpatrick L, Bakker CE, McAninch R, Ching Cheng N, Merriweather M, Hoogeveen AT, **Nelson DL**, Paylor R, Oostra BA (2002) Knockout mouse model for *Fxr2*: a model for mental retardation. *Hum Mol Genet* **11**(5): 487-498.
92. Gu Y, McIlwain KA, Weeber EJ, Yamagata T., Xu B, Antalffy BA, Reye C, Yuva-Paylor L, Armstrong D, Zoghbi H, Sweatt D, Paylor R, **Nelson DL**. (2002) Impaired conditioned fear and enhanced long-term potentiation in *Fmr2* knockout mice. *J Neurosci* **22**(7):2753-2763.
91. International Incontinentia Pigmentia Consortium (2001) Survival of Male Patients with Incontinentia Pigmenti Carrying a Lethal Mutation Can be Explained by Somatic Mosaicism or Klinefelter Syndrome. *Am J Hum Genet* **69**:1210-1217.
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